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09/897,988	07/05/2001	Yuta Nakai	210669US0	1677

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/897,988
Filing Date: July 05, 2001
Appellant(s): NAKAI ET AL.

Shelley Guest Cermak
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 12/15/06 appealing from the Office action mailed 7/28/06.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings, which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

The statement of the status of claims contained in the brief is correct.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

DT Ciccognani et al., "Carbon monoxide-binding properties of the cytochrome bo quinol oxidase complex in Escherichia coil are changed by copper deficiency in continuous culture," FEMS Microbiology Letters, Vol 94 (1999) pp 1-6.

Spehr et al, "Overexpression of the Escherichia coli nuo-Operon and Isolation of the overproduced NADH:Ubiquinone Oxidoreductase (Complex I)", Biochemistry, Vol 38 (1999) pp 16261-16267

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1, 7 and 12-14 stand under 35 U.S.C. 102(b) as being anticipated by Ciccognani et al (FEMS Microbiology Letters 94, 1992, page 1-6; see entire document). Ciccognani et al teach methods of culturing *E. coli* (RG145), which according to the instant specification comprise a high and low-energy efficiency respiratory chain pathway. RG145 is a genetic recombinant strain in which an enzyme of the high-energy efficiency pathway was enhanced and an enzyme of low-energy efficiency was deficient. The cells within the media comprise

nucleic acid or L-amino acid and were collected resulting in collection of the nucleic acid and L-amino acid. This inherently encompasses L-lysine, L-threonine and L-phenylalanine. The cells contain a chromosomal deletion resulting in the inability of the cell to express *cydA* and contain a cosmid containing the *cyo* operon resulting in over expression of the cytochrome bd complex (page 2, section 3.1) as recited in claims 1, 7 and 12-14.

Claims 1, 7 and 12-14 stand under 35 U.S.C. 102(a) as being anticipated by Spehr et al (Biochemistry, 1999, Vol 38, pages 16261-16267; see entire document). Spehr et al teach methods of culturing *E. coli* cells (ANN003/pAR1219), which according to the art and the instant specification comprise a high and low-energy efficiency respiratory chain pathway. ANN003/pAR1219 is a genetic recombinant strain in which an enzyme of the high-energy efficiency pathway was enhanced. The cells within the media comprise nucleic acid or L-amino acid and were collected resulting in collection of the nucleic acid and L-amino acid. This inherently encompasses L-lysine, L-threonine and L-phenylalanine. The *nuo* operon was cloned and expressed under control of the inducible T7Φ10 promoter in *E. coli* cells for overexpression as recited in claims 1, 7 and 12-14.

(10) Response to Argument

Appellants traverse the claim rejections under 35 U.S.C. 102 on pages 4-10 of the brief filed 12/15/06.

Comment [S1]: In an Examiner's Answer, you refer to "Applicant" as -- Appellant--. Find and replace throughout you answer.

Comment [S2]: A brief is not an amendment.

Appellants' arguments filed 12/5/06 have been fully considered but they are not persuasive. Both the prior art and the instant claims are specifically drawn to strains that have enhanced activity of NDH-1 and/or are deficient in cytochrome bd type oxidase, activity to which the disclosure is directed. Additionally, the claims recite that the strains can also produce and accumulate a target substance from the media. Appellants argue that Ciccognani et al and Spehr et al do not anticipate the instant claims as it does not teach that "a target substance is produced" and hence since there is no production of target substance, there can be no collection of the target substance. Furthermore, according to Appellants the phrase "the ability to produce and accumulate the target substance" limits the recited cell to one with an ability to produce L-amino acids and nucleic acid in an amount more than the amount required for growth of the bacterium, which are therefore secreted and collected from the medium. However, to so paraphrase the claims is reading limitations into the claims that are not found in either the claims or the specification. The specification teaches that the invention "However, there are no findings about the change of energy efficiency by amplification of a respiratory chain gene providing high efficiency such as those for NDH-I and SoxM type oxidase, and it is not ever known to attempt to utilize it for production of substances. Furthermore, no attempts have been made to utilize deletion of a respiratory chain enzyme of low efficiency such as NDH-II and cytochrome bd type oxidase for production of substances (bridging ¶, page 4-5)." In fact these strains are known in the art. Appellants then teach with these strains, "L-amino acid production was performed by using them and it was found that the L-amino acid productivity was improved in strains whose

energy efficiency was improved. Thus, the present invention was accomplished (page 6, line 4-7)." The claims recite that the strain is any *Escherichia coli*.

As guidance the MPEP teaches, "While it is appropriate to use the specification to determine what applicant intends a term to mean, a positive limitation from the specification cannot be read into a claim that does not itself impose that limitation. A broad interpretation of a claim by USPTO personnel will reduce the possibility that the claim, when issued, will be interpreted more broadly than is justified or intended. An applicant can always amend a claim during prosecution to better reflect the intended scope of the claim." MPEP 2105. Rather, claims are interpreted as broadly as their terms reasonably allow during prosecution. An inherent feature of all *E. coli* cells is that they produce and accumulate amino acids and nucleic acids intracellular as these are native processes active naturally in the cell. Any *E. coli* strain is capable of naturally accumulating nucleic acid and L-amino acids within the cell and outside of the cell through cellular lysis or rupture or through native excretion during normal growth and replication processes. The question is rather whether the art had demonstrated that these target substances are collected. As the strains inherently produce amino acids and the cells are collected, the step of collecting the cells or medium would lead to collection of the target substances. Spehr et al teaches on page 16262, col 1, ¶ 4 that the following growing conditions the cells are harvested and collected, which teachings are also found in Ciccognani et al on page 2, bridging ¶, col 1-2. Hence and given the broad interpretation that can be afforded an *E. coli* strain that "has an ability to produce and accumulate the target substance in the medium", the instant strain is the same as that in the cited prior art. Furthermore, Ciccognani et al and Spehr et al teach growing the cells are required by the claims. While the prior art teaches separating the

Comment [S3]: ?

cells from the media, which amounts to separating the substances from the media, the prior art reference anticipates the instant claims. For these reasons, it is believed that the rejections should be sustained.

Comment [S4]: They are not claiming the strain, but the method. Add that the prior art teaches growing the cells as required by the claims, and separating the cells from the media, which amounts to separating the substances form the media as well.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

Respectfully submitted,

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